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THE OPPORTUNITY OF THE GEOGRAPHER IN PROMOTING SCHOOL GEOGRAPHY*

By RICHARD ELWOOD DODGE

GEOGRAPHERS the world over, however closely they may confine their investigations to some specialized field of the vast subject of geography, are all interested in making their favorite subject of more importance and value to the world at large. The development of research in geography, as in any field of science, depends largely upon the financial and moral support that can be obtained from public or private sources. That support is more readily given to a subject that is generally recognized as contributing to the welfare of mankind. Applied science is in many cases therefore more generously supported than pure science, because applied science contributes immediately to the betterment of some of the arts and sciences, while pure science does not seem so to do. Inasmuch, however, as progress in applied science involves the previous development of the principles of pure science to be applied in a practical way, it behooves workers in the science of geography to see to it that the value of their work, in either the pure or applied form, is made manifest to the public that the greatest progress may be made in all phases of geography.

The contributions of investigators in geography gathered from work in the field, the laboratory or the library, are the pure science results which aid in the constant better organization and better understanding of the science of geography. The largest application of pure geography is in educational geography, considering broadly that educational geography

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includes all geography which contributes to the general culture and special training of children and adults, whether that training is secured formally in some educational institution or informally through the reading of geographic literature. Training for securing the best results through an informal personal study of geography can only be obtained through a previous formal study of geography in schools and colleges. The work in geography in schools and colleges should therefore be so arranged and organized as to give the best training in the principles of geography, in the methods of classifying geographic facts, and in the use of standard reference works in geography.

Geographers can do no more helpful or valuable work than in assisting in the betterment of educational geography in schools and colleges, working with the officers responsible for the curriculum and showing how applied geography may be used in everyday life in school and out. The better training of pupils in schools in this generation will mean the stronger support of both pure and applied geography by the adults of the next generation. Therefore geographers who aid in educational geography are building for the future and are contributing to the ultimate advancement of the science as much, if not more, than they could in any other way.

We cannot expect leaders in education to be experts in all fields of thought, and but few educational experts have more than a general knowledge of geography. Only the expert geographer can view the whole vast field of the subject, see its perspective and judge as to the relative values of the phases that may possibly be made a part of the curriculum arranged for the training of beginning students of geography.

Hence geographers have a fundamental responsibility in reference to educational geography—a responsibility which they only can properly meet and which presents problems of great difficulty.

No geographer in arranging a course of study for school or college classes can afford to think only of the best, most logical and most scientific order to be followed by adults in special work in scientific geography. He must always face the practical problems that confront the professional educator and frame his steps of progress in geography so as ultimately to lead to the best and most permanent results from the geographic standpoint. He must recognize all the time that the work he proposes must be within the abilities of the students of the age for which it is intended. Otherwise the work will fail of its purpose as a contribution to the knowledge and power of the students, and later work will consequently suffer. He must also bear in mind that but a very minor proportion of the students who begin geography in the earlier years of

the school will ever become trained geographers. The larger number will drop out after a few years of work, and hence the course must be so arranged that at no matter what age the pupil leaves school he will have gained something that will help him in after life.

The problem is also difficult because most schools have few teachers qualified to teach geography as it might be taught and hence the course outlined must be one that the layman can follow with success. Also beginning pupils are studying of necessity several topics at the same time. Hence the geography work to be most effective must be so planned as to help the work in history and literature and be closely related to the other work in science. It is not well to organize a school course to teach geography to children, but one to teach children and to prepare them for later life, in which preparation geography should receive strong and adequate attention.

It is for the geographer therefore to suggest the larger topics in geography that should be included in the school and college courses; to show the best order in which these topics or phases of the subject should be taken up to be of the best immediate usefulness and of the most permanent value to the pupils. He should also suggest in general the way in which the topics should be presented and aid teachers and educational leaders in getting a better grasp of the essentials of geography and in becoming able to teach geography more effectively. In those regions where school geography has come down through the generations unchanged and where a spirit of conservatism keeps in the curriculum many topics of little or no use to the pupils in any way, or which are not essential elements of the science, it is for the geographer to show what topics can replace the old to the best advantage.

Leaders in education are very liable to jump at straws, to insert in their school courses in geography new materials, often of only passing interest, of little or no value in the child's training and frequently worthless geographically, because some educational expert, with perhaps no knowledge of geography as a science, has suggested such topics as valuable as they are so very different from the topics that have persisted through the generations.

After a geographer has fulfilled his duty as outlined above, he must allow the educational leader responsible for the curriculum as a whole to take the initiative in deciding the amount of time to be devoted to geography and to arrange the work by years. The class-room teacher, within the confining but not galling limits set by her superior officers, should have free scope to teach her assignment of work as best she can, bearing in

mind that effective results will only be obtained when the work of her year is based on the work of the previous years, and leads up to that of the next higher year. The details of class-room practice in reference to the teaching of any particular topics cannot be worked out by the geographer unless he has had experience as a class teacher, though he can usually offer many suggestions as to ways of teaching to be tried and tested in the class room. The geographer can suggest the best reference books, the most valuable maps; he can show how maps should be used, how the globe can be made most valuable in the class-room and how the results can be tested from the standpoint of good geography.

With these considerations in mind, the question naturally arises as to what the experience of years and the mandates of good geography have determined as a good course in geography as a preparation for life or for higher work in geography as a science.

It is obvious that in the schools for pupils below thirteen or fourteen years of age, the course of study in geography should be a unit, so divided and arranged as to be of the most value in the training of the youthful mind, and which when completed should lead up to the work of the secondary or high school for pupils from fourteen to eighteen years of age, as that work leads up to the college work.

Ideally there should be a close and unbroken sequence of work in geography from the earlier years of school life through the university. In practice, at least in America, there is a more or less close-knit unit in the elementary school. Unfortunately however there is a long hiatus between this work and the work of the secondary school. The secondary school work, furthermore, is mostly physical geography preparatory to college entrance examinations with an occasional course in commercial geography. Regional geography, which is vital as a part of an adolescent's training for life, is practically omitted from the secondary school, and our graduates of eighteen go out into the world or into college with but little more knowledge of the general geography of the world than they had at the close of their elementary school course four or five years before. This is neither training for further good work in geography in a college or for using geography in everyday life. This great weakness in our plans is now being recognized and it is probable that the ideal condition will gradually be approached more nearly as the years go on.

The elementary school work is at present, therefore, the most thoroughly organized phase of geographic education. Experience and thought have shown that good geography, which can be approved by geographers demands a certain order of study in the elementary schools if we would

make our work practical, strong and disciplinary at every step and as a whole.

The first step in a logical course of study for children should naturally be, as has long been recognized in Germany and England, an analysis of the simpler elements of the vast geographical complex that surrounds a child in any locality and which we call, for lack of a better name, home geography. Home geography is, or should be, the fundamental division of a course of study, because pupils must study the local and familiar phases of the subject in order to appreciate the geography of distant and unknown regions, which can only be interpreted as it can be compared with the known. If the method of science involves "proceeding from the known to the unknown on the well-ordered assumption of the uniformity of nature" (Lloyd Morgan), then good science as well as good teaching requires that beginners should first study their home locality. Home Geography is one of the most difficult phases of geography teaching because any locality presents such a vast series of possible geographic topics and relationships that might be studied. It is obvious, however, that attention should mainly be devoted to those phases of the home environment with which the children come into the most personal contact and the study of which will lay the best foundation for an easy and successful approach to the study of the world or some remote area of the world. Geographers can therefore assist teachers materially by indicating what features of the home locality are most valuable geographically by selecting the vital and world-true relationships and showing how these may be studied so as best to lay a good foundation for all later work in the subject. No two localities have the same environment and hence no course of study can fit any two localities, though the general plan of procedure and the general order of topics may be the same in many contrasted localities. Geographers can help the cause in no better way than by aiding teachers in securing a better understanding of their home locality, and showing how to distinguish between the simple and the difficult and how to lead up to generalizations of permanent value.

Good teaching requires that the foundations laid in the early years should never have to be overturned. The ordinary generalizations of the textbooks are expressed in definitions. The geographers should aid in framing generalizations and definitions that not only define but which may be built upon without overturning the foundations as the years go on.

For instance, the well-worn definition of a river as a "body of water rising at a source and flowing into the ocean," is a bad definition because it is only partly true and because it must be cast aside when in later years

the idea of a river as including detritus and water in varying proportions, as rising in thousands of sources instead of many and as not of necessity reaching the ocean or any body of standing water is developed. This is but one instance out of many that might be chosen to illustrate the point that a definition should summarize the phenomena already studied in reference to a particular topic, and yet be expressed in such a way that future study may be an expansion of the earlier study and not the replacement of the false by the true. Definitions should not only be true for the home locality, but contain the essential ideas of the topic from a world-wide standpoint. Geographers can help good geography teaching vastly by showing how true generalizations of permanent value may be built up through a study of the special cases most immediately at hand.

The study of home geography should lead up to an understanding of the world as a whole in order that beginners may see something of their relations to the inhabited portions of the globe and have a background for the later detailed work on some of the continents. This approach to the world whole should be made through an expansion of the home geography, and there should be no abrupt break between two phases of the subject. By a skillful use of the globe, which is assumed as a miniature representation of the world, children can be led to see their relations to other peoples and distant parts of the globe just as easily and satisfactorily as the relations to local market gardens and manufacturing centers. Through the study of the products of commerce which contribute to their food, clothing or shelter, children may be led far afield geographically and yet feel that the work is personal in that they are studying their own geographical relations to the world.

A study of the simpler reasons why one locality or nation is dependent upon other distant regions for products in everyday use will lead naturally to certain generalizations in reference to world climate and regions of habitability. These generalizations, which may be summarized in the heat belts, give a basis for dividing any continent in later work. Generalizations as to shape and the broad climatic divisons of the world, as to the distribution of the continents in direction and distance in days' travel from the home locality are all that it is necessary to make at this time. Such generalizations can be developed through the study of the relation of the world to the home locality, and these are outgrowths of the normal educational method of studying the unknown through the known. It is not necessary at this time to study the relation of the world to the sun and moon or the motions of the earth or to make broad generalizations as to the divisions of the world into great highlands and lowlands. Such mat-

ters are not necessary at this stage, are too impersonal to be of advantage to the beginners, and if studied will be memorized and not worked out logically and meaningfully, as early generalizations should be. Teachers may have some difficulty in deciding on the regions of the world to be selected as contributing to the home geography and as the best centers through the study of which to develop the larger climatic features of the world. Geographers can be of great service therefore in helping to pick out the strategic points in the commercial geography of the world as related to the home locality and in showing how these selected areas may be studied to the best advantage for the purpose in mind.

Untrained teachers will become too formal in their work, will fail to approach the study from the life side, as it ought to be and will follow a text if possible, instead of making the text their servant, as texts always should be.

The larger part of the later work in school geography must of necessity be the study of the continents. It is usual to study certain of the continents, and in some cases all of them, twice. Unfortunately, however, in many, if not the large majority of schools, the treatment of the continents in both cycles is from the same standpoint, so that the second treatment is merely an expansion of the first treatment. This means that the work in the second cycle is often dry and uninteresting to the pupils because they think they know all that is to be treated. Hence the work is ineffective and does not lead to the best educational results. The fact that many pupils leave school by the end of the fifth or sixth year requires that their own country should be treated early in the course. Those who remain through the elementary school should have as serious and complete a treatment of their own country as possible, as a climax to their school work in geography. The intervening years should be devoted to the other countries and continents, dividing the time according to the relative importance of the different regions from a world standpoint.

The work of necessity, therefore, covering the same general field throughout several years, good geography and good teaching demand that the method of approaching continental study shall not be the same throughout the long time devoted to this phase of the subject. The earlier treatment cannot be as severe as the later because the pupils are not capable of as intensive work. This work should also be as closely related to the earlier work in home geography and the study of the world as a whole as possible, so that the simple facts and relations already considered may be applied and developed. The point of departure, therefore, should be the lives and activities of the people as related to their environment. The

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work should be mainly a study of life consequences in a given region through the study of which the physical causes may gradually be developed and shown to be of great importance. It is the life side of geography and not the formal physical side in which young children are most interested and to which they will give the best attention. Because an adult expert geographer would naturally begin with the causal side and work out to the application of his principles in the interpretation of involved life consequences in commercial and political geography is no reason why all students of any age should follow the same sequence. Children under twelve or thirteen years of age are not capable of sustained scientific thinking and gain little value from a method of study that works from causes to consequences in geography. On the other hand, the analysis and comparison of life relations in different regions, through which the pupils gain a knowledge of the facts of geography in everyday life, gives a background of experience and knowledge on which better geography teaching can be based in the later years of the course. The constant bringing out of new phases of the same controlling influence leads the pupils to see the importance of the physical side of geography and the necessity of formulating that side if they would learn to approach the subject of geography as the adult mind ought to approach it.

Hence in the earlier years only those large phases of surface and climate should be emphasized which are necessary as a setting for a study of the life relations of the people. The task then is to study the occupations, industries and inter-relations of the people so as constantly to bring out the causal phases of the subject which make the work knowledge and not mere information.

Later comes a time in which naturally the principles of physical geography, which have been so constantly appearing should be organized and systematized. Then a few months should be devoted to the study of the simpler phases of physical geography as such, in which reference is constantly made to the relations of people to their environment. Such a use of the facts already studied provides the best sort of review because it necessitates the use of materials from a different point of view. Physical geography, or better, the principles of geography, should not be studied in an elementary school as an individual phase of geography. They should be given emphasis and brought for a time to the center of the stage because the logical unity of the course as a whole demands it, and because the succeeding study of certain continents or countries from as serious a standpoint as the age and ability of the pupils permit, necessitates this emphasis. If rightly taught, physical geography becomes practically only a summary,

slightly elaborated, of the essence of the earlier work, and a necessary foundation for the later study of certain parts of the world from a causal standpoint.

In the last years of the course causal geography should prevail. The work should be from causes to consequences, as the earlier work was from consequences to causes, thereby making the later work, not merely an elaboration of the earlier, but an outgrowth of the earlier as a climax to a unified course of study in which at every step the method of presentation has been adapted to the children's abilities, needs and interests.

The causal treatment should be from the large and general features of position, topography, soil, mineral wealth, etc., to the consequent distribution of industries, occupations, centers of population, routes of commerce and trade, etc. Such a method of presentation makes the principles of geography as prominent as the facts, prevents the work from merely being a training in memory skill, gives the pupils habits of study, shows them how to study more geography in later life, either personally or under tuition, and incidentally trains them in the elements of scientific thinking as can no other subject in the curriculum.

Pupils gain most from that course of study which makes them to the fullest extent masters of their own powers, and which does not lead them to become incomplete gazetteers of facts, many of which are erroneous and a large number obsolete. Causal geography rightly taught, and for which the foundations have been carefully laid in the lower grades, is therefore stronger both for present and for future needs than mere memoriter work in which things and not the reason for things are the central thought, and is better geography.

Good geography teaching demands a series of progressive phases in a course of study. At each stage the temptation to roam afield and to waste time on the unimportant details is very great, and only the expert teacher, geographically trained, can test her own plans from the standpoint of good geography teaching. Geographers therefore should help in organizing the subject as a whole, should show what points and principles to bring out, should assist the teacher in deciding between the important and the unimportant, should aid her in securing good maps, should guide her in her study of a map that she may aid her pupils in making map study essential, and should contribute in every way possible toward making geography work in schools of such a character that a geographer cannot stigmatize it as poor or valueless from the standpoint of good geography.

In America we are coming to follow an outline of work similar to that sketched above; our geographers have many of them given their time

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freely and abundantly to helping teachers and workers in school geography. The leaven has worked down from the top, as it always must in elementary education, and already the work in school geography has been largely revolutionized in little more than a decade. There have been many mistakes, large and small, and some of the suggestions made by expert geographers have proved unsatisfactory because beyond the abilities of the pupils. But the strong position of geography in our better schools, the much more general distribution of good geography teaching, are largely due to the inspiring and suggestive work of the leaders in geography. This work has proved of great value to the science as a science, and is destined to prove of greater value yearly, so that geography among the adults of the next generation will be in better repute than it has been in this.

Geographers everywhere can well afford to aid in such work, for it brings good geography to the masses and not to the few merely, as it does if they confine themselves wholly to research. Geographers everywhere should recognize their opportunity, if not their duty, in this regard, and put their shoulders to the wheel and work with the leaders of education and the teachers. Growth, improvement, strength, cannot come in school geography if the subject is left entirely to the inexpert (geographically) workers in education. There is no more important phase of the subject than elementary school geography and no phase in which more good work remains to be done. Let us hope that geographers will come more and more to recognize its importance and help to explore what is still to many geographers a "terra incognita."

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THE CHARACTERISTICS OF THE ZONES
II.—THE TEMPERATE ZONES[1]

By ROBERT DEC. WARD
Harvard University

North Temperate Zone: West Coasts. Marine climatic types are carried by the prevailing westerlies on to the western coasts of the continents, giving them mild winters and cool summers, abundant rainfall and a high degree of cloudiness and relative humidity. Northwestern Europe is particularly favored because of the remarkably high temperatures of the North Atlantic Ocean, and because of the influence of the winds controlled by the low pressure area off Iceland. In January, northwestern Europe has temperatures from 20° to 40° in excess of the normal for the latitude. The northwestern coast of North America has temperatures more than 10° too warm. January means of 40° to 50° in the British Isles and the northern French coast occur in the same latitudes as those of 0° and 10° in the far interior of Asia. In July, means of 60° to 70° in the former contrast with 70° to 80° in the latter districts. The conditions are somewhat similar in North America. Along the western coasts of North America and of Europe the mean annual ranges are under 25°, —actually no greater than some of those within the tropics. Irregular cyclonic temperature changes are, however, marked in the temperate zone, while absent in the tropics. The data and curves for the Scilly Isles and for Thorshavn, Faröe Islands, illustrate the insular type of temperature on the west coasts. In the Faröes the mean maximum is 65.1° and the mean minimum 16°. It will be noted that the poleward decrease in the mean annual and the mean winter temperatures is very slow between latitudes 50° and 62°N. on the west coast of Europe.

[1] Continued from page 353.

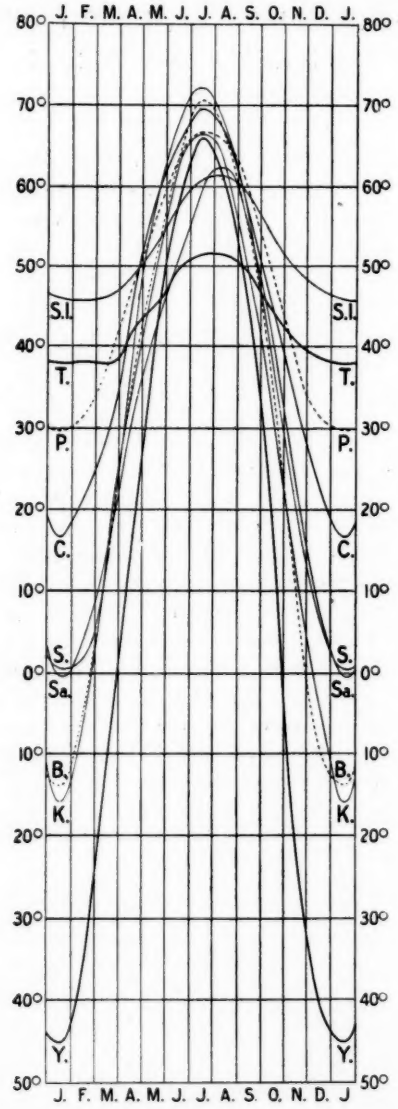

FIG. 5

Mean Monthly Temperatures for Selected Stations in the Temperate Zones.

S. I.—Scilly Isles; P.—Prague; C.—Charkow; S.—Semipalatinsk; K.—Kiachta, B.—Blagoweschtschensk; Sa.—Sakhalin; T.—Thorshavn; Y.—Yakutsk.

Table of Mean Monthly Temperatures for Selected Stations in the Temperate Zones.

	Along lat. 50°N							At lat. 62°N.	
	West Coast	Continental					East Coast	Insular	Continental
	Scilly Isles	Prague	Charkow	Semipalatinsk	Kiachta	Blagoweschtschensk	Sakhalin	Thorshavn, Faröe Isles	Yakutsk, E. Siberia
Lat	49°55′	50°5′	50°2′	50°24′	50°21′	50°15′	50°50′	62°2′	62°1′
Long.	6°20′W	14°26′E	36°11′	80°13′	106°31′	127°38′	142°7′E	6°44′W	129°43′E
Alt. (ft.)	98.4	662.7	413.4	593.8	2526	360.9	180.4	29.5	328.1
Jan.	45.7°	29.8°	16.5°	0.5°	-15.9°	-13.9°	-0.4°	37.8	-45.2
Feb.	45.7	32.0	22.1	1.8	-5.4	-3.3	5.0	38.1	-35.0
March	46.0	37.8	29.3	14.4	16.9	14.4	15.8	37.8	-10.7
April	48.7	47.3	44.8	38.3	34.3	34.7	31.1	41.9	15.1
May	52.5	55.9	58.8	57.2	48.7	49.6	41.4	45.0	40.3
June	57.9	63.3	65.1	68.0	63.1	63.7	50.7	49.5	58.5
July	60.8	66.7	69.6	72.0	66.4	70.5	60.3	51.4	65.8
Aug.	61.2	65.3	66.4	67.3	61.7	65 8	62.2	51.3	59.7
Sept.	58 6	58.8	56.1	54.9	48.0	53.2	53.6	48.7	42.3
Oct.	54.0	48.7	45.5	38.1	32.0	34.2	39.6	43.9	15.8
Nov.	49.6	37.6	33.8	20.1	11.8	9.7	22 5	40.6	-21.3
Dec.	47.3	31.3	23.2	6.1	-2.7	-9.2	7.3	38.1	-41.1
Year	52.3	47 8	44.2	36.5	29.8	30.7	32.4	43.7	12.0
Range	15.5	36.9	53.1	71.5	82.3	84.4	62.6	13.7	111.1

Monthly Distribution of Rainfall (in thousandths of the annual mean) *Temperate Zone.*

	Continental Summer Rains		Coast Rains	
	Moderate	Very heavy	Uniform Distribution	Fall and Winter Rains
	Central Europe North of Alps	Northern Asia	Atlantic Coast, North America	Northwest Europe
Lat.	About 50°N.	About 55°N.	About 40°N.	About 60°N.
January	57	20	84	100
February	56	17	77	80
March	68	18	85	72
April	71	35	70	56
May	92	75	80	58
June	115	235	81	64
July	121	215	96	70
August	117	122	87	80
September	82	133	84	102
October	75	58	91	110
November	74	40	86	102
December	72	32	79	106

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The monthly distribution of rainfall, with the marked maximum in the fall and winter which is characteristic of the marine regime, is illustrated in the last column of the table above, for northwestern Europe, and in the corresponding curve.

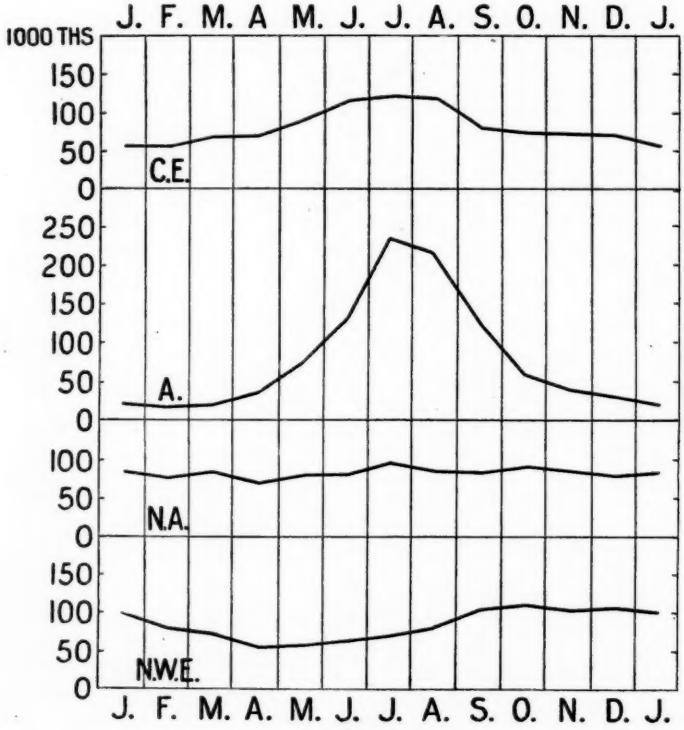

FIG. 6

Monthly Distribution of Rainfall, Temperate Zone.
(In thousandths of the annual mean)

C. E.—Central Europe; A.—Northern Asia; N. A.—Atlantic Coast of North America; N. W. E.—Northwest Europe.

On the northern Pacific coast of North America the distribution is similar. Thus at Olympia, Washington, there is a distinct cold season maximum, as appears in the following data:

Monthly Distribution of Rainfall at Olympia, Washington
(in thousandths of the annual mean.)

January	159
February	135
March	95
April	65
May	44
June	31
July	13
August	13
September	53
October	86
November	124
December	182

In the southern hemisphere, the western coasts of southern South America, Tasmania and New Zealand show the same type.

The cloudiness and relative humidity average high on western coasts, with the maximum in the colder season. The difference in general rainfall conditions between the west coast, typified by the exaggerated case of Valentia, in southwestern Ireland, and the Mediterranean, is seen in the number of rainy days in each district. Valentia has nearly 250. In the latter, they may be set down as about 100, in round numbers.

The west coasts, therefore, including the important climatic province of western Europe, and the coast provinces of northwestern North America, New Zealand and southern Chile, have, as a whole, mild winters, equable temperatures, small ranges, and abundant rainfall, fairly well distributed through the year. The summers are relatively cool, especially on the Chilean coast.

Continental Interiors. The equable climate of the western coasts changes, gradually or suddenly, into the more extreme climates of the interiors. In Europe, where no high mountain ranges intervene, the transition is gradual, and broad stretches of country have the benefits of the tempering influence of the Atlantic. In North America, the change is abrupt, and comes on crossing the lofty western mountain barrier. The data in the table on page 397, and the corresponding curves in Fig. 5, illustrate well the gradually increasing continentality of the climate with increasing distance inland in Eurasia. Central Europe is seen to lie between the modified marine climate of the west coast and the continental conditions of Russia and Siberia. Its mean temperatures do not differ very much from those on the coast, but the seasons are more sharply contrasted.

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The continental interiors of the north temperate zone have the greatest extremes in the world. Towards the Arctic circle the winters are extremely severe, and January mean temperatures of -10° and -20° occur over considerable areas. At the cold pole of northern Siberia a January mean of -60° is found. Mean minimum temperatures of -40° occur in the area from eastern Russia, over Siberia and down to about latitude 50°N. At Verkhoyansk, an important town just beyond the Arctic Circle, the absolute minimum is below -90°; and a mean monthly temperature of -88.8° was noted in January, 1886. Over no small part of Siberia minimum temperatures below -70° may be looked for every winter. Thorshavn and Yakutsk (see table on page 397) are excellent examples of the temperature differences along the same latitude line. The winter in this interior region is dominated by a marked high pressure. The weather is prevailing clear and calm. The ground below a slight depth is frozen the year around over wide areas. The moderate snowfall is sufficient, with the continued cold, to make sleighing possible for immense stretches all over the country. The frozen rivers can be crossed without bridges. This unifying influence, of easy winter communication, has been most important in Russian history, as Leroy-Beaulieu has pointed out. The extremely low temperatures are not disagreeable except when the steppes are swept by icy storm winds (buran, purga), carrying loose snow, and often resulting in loss of life.

In the North American interior the winter cold is somewhat less severe. The lowest January mean temperatures are -30°, in the extreme northern portion of the continent. Mean annual minima of -40° occur down into the northern interior portion of the United States. The lowest is about -58°, near Great Bear Lake, with an absolute minimum of about -72°. North American winter weather in middle latitudes is often interrupted by cyclones, which, under the steep poleward temperature gradient then prevailing, cause frequent, marked and sudden changes in wind direction and temperature over the central and eastern United States. Cold waves and warm waves are common, and blizzards resemble the buran or purga of Russia and Siberia. With cold northerly winds, temperatures below freezing are carried far south towards the tropic. The January mean temperatures in the southern portions of the continental interiors average about 50° or 60°.

In summer, the northern continental interiors are warm, with July means of 60° and thereabouts. These temperatures are not much higher than those on the west coasts, but as the northern interior winters are much colder than those on the coasts, the interior ranges are very large.

The mean annual extreme ranges exceed 150° in northern North America and 170° in Siberia. Mean maximum temperatures of 86° occur beyond the Arctic Circle in northeastern Siberia, and beyond latitude 60° in North America. In spite of the extreme winter cold, agriculture extends remarkably far north in these regions, because of the warm, though short, summers, with favorable rainfall distribution. The July isotherm of 50° is about the northern limit of tree growth. Beyond a zone of stunted tree growth comes the tundra. The summer heat is sufficient to thaw the upper surface of the frozen ground, and vegetation prospers for its short season. At this time, great stretches of flat surface become swamps. The southern interiors have torrid heat in summer, temperatures of over 90° being recorded in the southwestern United States and in southern Asia. In these districts the diurnal ranges of temperature are very large, often exceeding 40°, and the mean maxima exceed 110°.

In South America, the interior of Argentina has moderate mean annual ranges (20°-30°); the mean maxima reach 95°-100° and even higher, and the mean minima fall below 23°. The west coast has smaller ranges (less than 20°); lower mean maxima (77°-86°) and higher mean minima (32°-23°).

The winter maximum rainfall of the west coasts becomes a summer maximum in the interiors. The change is gradual in Europe, as was the change in temperature, but more sudden in North America. The curves for central Europe and for northern Asia (see Fig. 6) illustrate these continental summer rains. The summer maximum becomes more marked with the increasing continental character of the climate. Thus, while June to August in central Europe give about thirty-five per cent. of the annual precipitation, in northern Asia, excluding the coast, they give nearly sixty per cent. The rains of Asia are actually comparable, in relative intensity, at their maximum, with the rains of the tropics. In Bengal, e. g., June to August give only fifty-seven per cent. of the annual rainfall. The winter dry season of Asia is however very different from a tropical dry season, because of the difference in conditions of vegetation and of snow cover. In North America, Nebraska, a state which is typical of a considerable district of summer rains, receives about sixty per cent. of the annual rainfall in the months of April, May, June and July.

The change in rainfall season with increasing distance from the Atlantic Ocean in Eurasia is well brought out by Supan in the following table.

Table Showing Seasonal Distribution of Rainfall in Eurasia.
(in percentages of the annual mean.)

	Winter	Spring	Summer	Autumn	Range
Ireland	28	21	24	27	5
Western England	28	19	24	29	5
Eastern England	23	19	28	30	5
Northwestern Germany	23	22	31	24	5
Central Germany	20	23	34	23	6
Eastern Germany	19	22	37	22	7
Western Russia	16	21	39	24	10
Central Russia	16	22	37	25	10
Western Siberia	13	13	42	32	14
Eastern Siberia	9	12	58	21	21

There is also a well-marked decrease in the amount of rainfall inland. In western Europe the rainfall averages twenty to thirty inches, with much larger amounts (reaching 80-100 inches and even more) on the bold west coasts, as in the British Isles and Scandinavia, where the moist Atlantic winds are deflected upwards, and also locally on mountain ranges, as on the Alps. There are small rainfalls (below 20 inches) in eastern Scandinavia and on the Iberian peninsula. Eastern Europe has generally less than twenty inches, western Siberia about fifteen inches, and eastern Siberia about ten inches. In the southern part of the great overgrown continent of Asia an extended region of steppes and deserts, too far from the sea to receive sufficient precipitation; shut in, furthermore, by mountains; controlled in summer by drying northerly winds, receives less than ten inches a year, and in places less than five inches. In this interior district of Asia population is inevitably small, and suffers under a condition of hopeless aridity.

The North American interior has more favorable rainfall conditions than Asia, because the former continent is not overgrown. The heavy rainfalls on the western slopes of the Pacific coast mountains correspond, in a general way, with those on the west coast of Europe, although they are heavier (over 100 inches at a maximum). The close proximity of the mountains to the Pacific, however, involves a much more rapid decrease of rainfall inland than is the case in Europe, as may be seen by comparing the isohyetal lines in the two cases. The rain-shadow influence of the Pacific coast Cordilleras extends about half-way across the continent. A considerable interior region is left with deficient rainfall (less than 10 inches) in the southwest. The eastern portion of the continent is freely open to the Atlantic and the Gulf of Mexico, so that moist cyclonic winds have free access, and rainfalls of over 20 inches are found everywhere

east of the 100th meridian. These conditions are much more favorable than those in eastern Asia. The greater part of the interior of North America has the usual warm-season rains. In the interior basin, between the Rocky and Sierra Nevada mountains, the higher plateaus and mountains receive much more rain than the desert lowlands. Forests grow on the higher elevations, while irrigation is necessary for agriculture on the lowlands. The rainfall here comes chiefly from thunderstorms.

In South America the narrow Pacific slope has heavy rainfall (over 80 inches). East of the Andes the plains are dry (mostly less than 10 inches); the southern part of the continent is very narrow, and is open to the east, as well as more open to the west owing to the decreasing height of the mountains. Hence the rainfall increases somewhat to the south, coming in connection with passing cyclones. Tasmania and New Zealand have most rain on their western slopes.

In a typical continental climate the winter, except for radiation fogs, is very clear, and the summer is the cloudiest season, as is well shown in the following data and curve for eastern Asia. In a more moderate continental climate, such as that of central Europe, and much of the United States, the winter is the cloudiest season.

Monthly Distribution of Cloudiness in Continental Climates.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
I. Eastern Asia 10 stations. Lat. 56.5°N. Long. 115°E.	3.1	3.4	3.9	4.7	5.7	5.6	6.2	6.0	5.5	5.4	4.8	4.2	4 9
II. Central Europe. Hungarian Plain. Lat. 47°N.	6.5	5.9	5.7	5.6	5.4	5.3	4.4	4.2	4.6	5.8	6.6	6.9	5.6

In the first case the mean cloudiness is small; in the second there is a good deal of cloud all the year around.

The vast continental interiors, whose climatic features have here been outlined, can obviously be subdivided into smaller climatic provinces almost indefinitely.*

East Coasts. The prevailing winds carry the marine climate of the oceans onto the western coasts of the temperate zone lands. They also carry the continental climates of the interiors off over the eastern coasts of these same lands, and even for some distance on to the adjacent oceans. The east coasts therefore have continental climates, with modifications resulting from the presence of the oceans to leeward, and are necessarily separated from the west coasts, with which they have little in common.

*See, for example, the excellent scheme of climatic provinces suggested by Supan (*Atlas of Meteorology* Pl. 1.)

On the west coasts of the north temperate lands the isotherms are far apart. On the east coasts they are crowded together. The east coasts share with the interiors large annual and cyclonic ranges of temperature. At latitude 55°N., for example, the east coast of Asia has a mean annual range which is four times as large as that of the west coast. A glance at the isothermal maps of the world will show at once how favored, because of its position to leeward of the warm North Atlantic waters, is western Europe as compared with eastern North America. A similar contrast, less marked, is seen in Eastern Asia and western North America. In eastern Asia there is some protection, by the coast mountains, against the extreme cold of the interior, but in North America there is no such

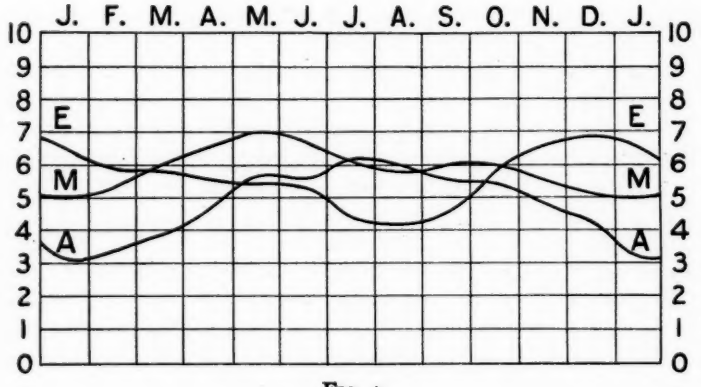

FIG. 7

Monthly Distribution of Cloudiness in Continental and Mountain Climates.

E.=Central Europe; A.=Eastern Asia; M.=Mountain.

barrier, and severe cold winds sweep across the Atlantic coast states, even far to the south. Owing to the prevailing offshore winds, the oceans to leeward have relatively little effect. In the northeast, the cold water is effective in giving cooler summers than farther south.

As already noted, the rainfall increases from the interiors towards the east coasts. In North America, the distribution through the year is very uniform, with some tendency to a summer maximum, as in the interior (see Fig. 6).

In eastern Asia the winters are relatively dry and clear, under the influence of the cold offshore monsoon, and the summers are warm and rainy, with the northward extension of the southeast monsoon, which reaches as

far as lat. 60°N. The summer maximum of rainfall on this coast is clearly shown in the following data (Trabert).

Monthly Distribution of Rainfall. East Coast of Asia.
(in percentages of annual mean.)

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
2	2	3	6	8	10	12	21	16	11	6	3	19.3 ins.

Rainfalls of forty inches are found on the east coasts of Korea, Kamchatka, and Japan, while in North America, which is more open, they reach farther inland. Japan, although occupying an insular position, has a modified continental, rather than a marine climate. The winter monsoon, after crossing the water, gives abundant rain on the western coast, while the winter is relatively dry on the lee of the mountains, on the east. Japan has smaller temperature ranges than the mainland.

Mountain Climates. The mountain climates of the temperate zone have the usual characteristics which are associated with altitude everywhere. If the altitude is sufficiently great, the decreased temperature gives mountains a polar climate with the difference that the summers are relatively cool, while the winters are mild owing to inversions of temperature in anticyclonic weather. Hence the annual ranges are smaller than over lowlands. At such times of inversion, the mountain tops often appear as local areas of higher temperatures in a general region of colder air over the valleys and lowlands. The increased intensity of insolation aloft is an important factor in giving certain mountain resorts their deserved popularity in winter (e.g. Davos and Meran). Of Meran it has been well said that from December to March the nights are winter, but the days are mild spring. Mountains provoke rainfall, even in arid continental interiors, and thus we have well-forested plateaus and mountain slopes rising above desert lowlands. With increasing altitude agriculture becomes more difficult, and population diminishes, until the upper slopes of lofty mountains are uninhabitable. The diurnal ascending air currents of summer usually give mountains their maximum cloudiness and highest relative humidity in the warmer months, while winter is the drier and clearer season. This is shown in the data below (see Fig. 7).

Monthly Distribution of Cloudiness. Mountain Climate.
(Central Europe. Alpine Summits. 8500 ft. Lat. 47° N. Seven stations.)

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
5.0	5.3	6.0	6.5	7.0	6.7	6.1	5.8	6.0	6.0	5.5	5.1	5.9

The clouds of winter are low; those of summer are higher. Hence the annual march of cloudiness on mountains is usually the opposite of that on lowlands.

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NEWSPAPER LETTERS FROM THE FORBIDDEN BALKANS

By FELIX J. KOCH
Cincinnati, Ohio

II.—TO-DAY IN OLD THESSALONICA.

WITH all the terrors that a brigand-band such as the "125" ever in its vicinity inspires, old Thessalonica, the Salonica of to-day, is still so picturesque that the traveler, the rare visitor, dropping in, cannot choose but linger, for here, if anywhere, is the *old* Orient still unspoiled, and the hooded woman and the Moorish slave go by, in little companies, as they did before infidel foot dared tread where the crescent floated and the Sultan was master of the world.

Salonica, however, has been accursed, from earliest times, and even now it would seem as if " trouble, no end of trouble," were the only news the world receives from the port.

Away back as far as the year 315 B. C., Salonica was the seat of turmoil, Kassander, its actual founder, having driven the inhabitants of a little town to the southward onto the site by force, and then given the newly born village the name of his Queen, the sister of the omnipotent Alexander—Thessalonica. Thessalonica had a splendid situation here on the Thermalisian gulf, and with strong fortifications and stronger alliances it rapidly aspired to power, becoming the metropolis of Macedonia in an incredibly short time, and remaining the capital of that province when Macedonia was swallowed up in the Roman empire.

We have heard much of old Thessalonica—Cicero lived here in exile, and not over half a century before the birth of Christ the Apostle Paul did the preaching which survives in our Bible, while Rome was at the tender mercy of Nero. In fact, St. Paul is reputed to have founded a church at this place, and it was this parish to which he addressed the two famous epistles. Of the strenuous life of these early Christians history has had much to say, for then and there was the beginning of the troublous times for the Salonicans.

Theodoric the Mighty is the next to figure in the story, when the city rebelled against Roman supremacy. The result was that Caesar, in 374, began the Macedonian atrocities, by ordering not less than 7,000 citizens slain in cold blood. So old is the Macedonian question from the humanitarian point of view, and although the bishop of Milan, Ambrose the Good, afterward forced the emperor to perform just 390 penances for

this act, the precedent has been set and human life descended in value ever after through the centuries.

Troublous days followed for Salonik. In the sixth and eighth centuries Slavic hordes overran the city; then, about the year 904, the Saracens, and in 1185 the Normans, under Tancred, took the place. At the time of Latin sway in Constantinople the city formed part of a mighty margrave domain and the rule was cruel and harsh. Under the subsequent emperors of Salonica, the Bulgarians besieged the city, and, hardly recovered from those wars, the Nycaean king annexed it to his realms. Later, when the Turks threw the town into a state of terror, her ruler, or palolog, became frightened, and, with the citizens' consent, sold town and all to the Republic of Venice for 50,000 ducats. Venice, however, made a bad investment that time, for only a few years later the Turks took the place and it has been theirs ever since.

Once Turkish rule set in, it was requisite that the Moslem recognize the wives and sisters of his fellows from the "giaour," and so there must be a distinguishing costume. Further, even with this, the pretty sister must be sheltered from the eyes of overly-admirous men, and hence the veil. And the veil ever since has distinguished Moslem from Christian.

Ever since the day when the Koran became the gospel of one of the largest fractions of the world's population, and Mecca was made the shrine for the peoples of the best part of Asia, Mohammed's ruling has hidden the faces of countless legions of beauties, and only now, when the 20th century is creeping slowly in on the sixth in the Orient, are the first actual departures being made from this rule.

How Mohammed ever secured obedience to his ukase about the veiling of women is a question on which one likes to ponder. When first inaugurated, who dared promulgate the law? Who the fearless herald to stand forth in the village streets and to the dying note of bugle blast, announce that: "Now and forever, all ye Moslem women," etc.? What the name of the first husband actually to enforce it, and what strategy or brute force did he employ on his three wives? What might have been the name of the very first damsel, who, recognizing the inexorableness of fate and the uselessness of resistance, stopped weeping and pouting, and, bidding the vain world adieu, flung on the hated cover, to wear it ever, when in public, until death should her from it part? It makes one truly pensive to ponder on the gallons of pearly tears that must have watered the sands of Arabia and the parterres of the farther Orient, and grateful not to have had to harken to the blasphemies showered on the head of the prophet. For,

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while some authorities tell you that the veiling of women went far back in to the remote period of life in the east, it was Mohammed that made the fashion static for our own day, and also inflicted it upon many tribes that would probably otherwise never have known it. The Moslem, remember, gave the infidel the choice of Koran or death, and when it was the former that he took, it meant that his women must adopt the veil. So it is easy to see the effect on the present. After one has visited Salonica, however, he comprehends the wisdom of the ruling. Even in latter times it has served to protect the Turkish women. During the days of mob rule in 1876, when the French and German consuls were killed by the populace and at the time of the great conflagration, where 2,000-odd homes were destroyed, in order that sombody might have his revenge, as recently in fact as the demonstrations incident to the dynamiting of the Ottoman bank—last April a year ago—it was this difference that alone saved many a woman from injury or insult.

Veils here are different from those anywhere else in the Ottoman domains, nor is this strange when one remembers that everywhere in the East the costume is purely local, and that there is as much difference between cities located as closely as Boston and Salem as there would be between New York and Los Angeles. Down in the Herzegovina veiling still persists to the greatest extreme. There a hood, projecting far beyond the face, is attached to the black coat of the matron, and, not content with this the Turkish women draw a piece of black cloth directly over the countenance. Upon this latter a scarlet or golden design is embossed so that, as the women saunter down the harem lanes, one imagines a butterfly or beetle perching on a field of black inside the "poke bonnet." Yet in the Herzegovina, ever since the Austro-Hungarian occupation, women have been as safe as they are anywhere in the Christian world. But here in wicked Salonik, where no one could swear that, even excepting natural causes, he will be living to-morrow, the Turkish women are now beginning to abbreviate face-covering, and it is probable that before many years, they will go about barefaced unashamed. The Mohammedan gipsies of the Sandahak of Novipazar have already arrived at such condition, and I am told that among the settled Moslem tribes of Asia Minor a like state prevails.

What the result of dropping the veil may be in the world's politics it will be interesting to see. It must affect the social status of all Turkey and with the present status completely overthrown, the Ottoman empire will either rise to new heights or else tumble to the ground—there can be

no halfway measure. It goes without saying that had not Mohammed given such absolute sanction to the wearing of the veil, Moslem women would never have become as distinct, and held so far aloof from the Christians in their country as they have. Consequently, the harem life would have been modified by contact in the centuries, and the traditions imbibed by the Turk while still in his mother's care would have been wholly other. Incidentally, too, had the young Turkish girls mingled more with the non-Moslem women there, such sharp lines would never have been drawn in fashions as now exist, and in every town in the Orient, instead of two sets of raiments in every city, village and town, there would to-day have been but one. What the world must have lost in pattern suggestions and color effects; what the Orient would have failed to turn over to the Occident in artistic suggestions that give pleasure to the color-loving eye, it is impossible to estimate, and for all this we owe thanks to Mohammed.

All in all, the Turkish women of Salonica dress better than do the dames of the proletariat anywhere else in the Balkans. Satin and silk are the general favorites, and the women do not stint. Great flowing sleeves, wide puffed waist, and tastily embroidered skirts, all of black satin edged with crepe, is the regulation attire for the matrons. A widow's veil fits over the rear of the head; while across the face a band of brown, checkered or plain, completes the costume. Most of the women carry black parasols, no matter what weather, and almost all of the wealthier Turkish dames are attended by their stalwart Moorish slaves.

These giant blacks, following the small, hooded women of Salonik, make one realize more than anything else that the East is still the East of the olden time. Much has been asked in the last few years of the status of slavery in Macedonia, and a consul tells me it is this: A slave can go to any foreign consul and make declaration of unwillingness to remain any longer in bondage. This testimony, the consul then presents the vali, or governor, and the slave is declared free. In Ottoman domains, slavery, *per se,* is legally prohibited, but the law is a fiction unless enforced in this wise. In Salonica I was assured that the majority of blacks one sees on the streets are the absolute slaves of their mistresses, and as a Moslem will never mistreat a fellow-Mohammedan, many of these have not the slightest desire for freedom.

Now and then the younger girls accompany mamma and the Moor on the day's shopping, and in their brown and white-checked, flowing gowns, and the veil over the upper half of the face, like a domino mask, they add

a bit of color to the street picture. Father is never along on these shopping excursions and, aside from an occasional peddler, like he who swindled Mrs. Aladdin of her magic lamp, the residence streets are almost barren of men in the business hours of the day. A lad from the tinner's shop, or a donkey train, heavily laden, or some water-seller with polished urn of brass, may draw the inmates of the harems to the lattices.

Strict as are the Turkish women as to the proprieties, in matters of dress, to just such degree is the Salonik Jewess negligent. Probably in all the world where European dress prevails there is not a race of women who wear such decided open-work, whose waists are as low cut save for lace, and whose flounces so loosely cover the figure as do these Jewesses of Salonik. Further, the play of color in their costume is such as to attract attention. Your Salonik Jew grows rich very quickly, be he engaged in commerce or hand-work, in shipping or mere porterage, and what he earns, his wife spends on her clothes. Black silk skirts that outrival those of the Turks, open-work waists of the finest Flemish laces, and, above all, a low-cut cape of black satin, fringed with just enough gilt braid to make the glossy black seem immaculate—such is the regulation costume. On the head these women bear a "coffie"—a circular flat cap of red, with triangle of black worn on the front. Suspended from this, and, in relief against the black of the cape and skirt, are two or three broad ribbons of the greenest of green, which the wind lifts now and then and flaunts in the faces of passers, like advance posters of an American circus, half-torn from some city bill board. Attached to these ribbons are the Jewesses, fleshy and tall of stature, and if one has seen a group of them gossiping in their spoiled Spanish, which is here printed in Hebrew letters, you will never forget the sight. Up to the time of marriage, these Jewesses wear ordinary loose European attire, but after that sacrament it is this costume only which prevails. There are just as many synagogues as mosques in Salonica, thirty apiece, while the Christians have but twelve churches.

These Jews are descendants of exiles from Spain who took refuge here in the year of America's discovery. As a result of a religious revival in the 17th century, some of these people became converts to Islam, but as they took on only the externals of the faith, the Mohammedans scorn rather than affiliate with them.

The lighter shade of Salonik life is given by the Greeks. Short white waists, daintily fluted; white waists; a great red belt full of pistols, finely chased; and tall red fez, make the Greek men perfect types of Oriental splendor, especially in contrast to the dirty Spanish Jews of masculine persuasion.

This, however, is picking the mêlée to pieces. Bring in the background of sea, Olympus, and the chain of low, bluer hills, and then let these folk commingle, and the scene takes on kaleidoscopic variation. Greek in white, with sash of red and fez; Turk of fair complexion, and swarthy-bearded Jew; men in occidental clothes save for the fez of the nearer East; Jewish women, Turkish women; the street wagon drawn by the Cape buffalo, one must needs be ever snapping the kodak.

Going shopping or marketing in Salonica is like visiting a world's fair Midway. In the fruit stores, where lemons are piled high on the floor, fishermen, like those of the Bagdad tales, in great fur coats and with fish in hand, are stopping. Nearby are the bazaars of baubles and trinkets—cheap blue grass bracelets, candles, soap, and filigree; cloths of gay colors—and all thronged with people in costume. Close beside is a meat bazaar, with the flies nesting on the mutton in the doorway, and one wonders if an exportation of American ice chests would not prove as great a bonanza as our sewing machines have been. Near at hand is the fish arcade, equally filthy, with its baskets of sea trout and eels. Beyond, the cheeses are sold, and vegetables are stacked in the distance.

The clothes bazaar of Salonik is one of the most curious in the world. Shops of the sort, including venders of dress goods, silk, filigrees of better quality, nargilehs and embroideries, line one steeply ascending thoroughfare, about the width of an old Boston cow-path, and over this lane a lattice-work roof has been thrown, so that the avenue seems one great arcade. On the second floor of this tunnel the shop owners usually live, and that no sound of trafficking may disturb their slumbers, these bazaars are closed in the evening.

The Salonik Turk is exceedingly impetuous in his calls to the foreign buyer, and one cannot pass through the arcade, it is safe to say, without at least one more tidy, pipe, scarf, or bit of stoneware. More of these narrow arcades lead off to left and right, that one may become lost in the tantalizing mazes, and what between fruit stores and bakeries, tobacco booths and cafes, this Salonik is a strangely other one from the petrified mass of walls that rises up from the wharves when seen from the harbor. There are modern hotels and warehouses, and foreign post-offices, that one's mail be not confiscated if the Turks suspect treasonable content; but here things are truly Turkish. Get lost among these unlit streets of a dark summer's night, and you will appreciate the fact most thoroughly.

The only absolute and incessantly busy factors in Salonican life are the chestnut venders and the bootblacks. Nowhere in all the world are

there more absolutely pestering bootblacks than in this vilayet capital of Macedonia. Boston shoe polish is consumed almost exclusively over the Balkans, and the best sales are in Salonica. Many of these little bootblacks sell souvenir postals also, and they drive one to extremes with their pestering. One of them would come, time and again, to our table on the quay, verily push the cards in our pocket, saying, in his broken French, he "gives them to us," and then start shining our shoes under protest. Finally, to teach both him and the others a lesson, we pocketed the cards and walked into the lobby. He waited a quarter of an hour for us, but we did not appear with his money. Then, through the shutters, we saw him begin to cry. We reappeared, and explained that, he having given us the cards and shined the shoes without orders, we did not have to pay for them. So he wept, and his comrades looked on in indignant sympathy. They knew too well that against foreigners who might bring into play the consuls of Salonik they could expect absolutely no justice in a Turkish court, so there seemed nothing for them to do. Then our lad, a Spanish Jew, like the most of them, pleaded poverty, and we were touched by his story. We returned him his pictures and a piaster for a present—more than he would clear by his shines in a week—and he went away rejoicing. But after that our shoes were shined only when we so desired. The crowd had learned its lesson.

Another unexpected feature in connection with costume in this heathen land are the venders of rosaries. Many of the Turkish retain fez alone, as symbol of their faith, and in order to be distinguished from these Mohammedans, the Greek Catholics, who likewise wear the fez, carry the sacred beads, but of a different sort from the Moslem rosary. Not even on the streets of ultra Catholic Rome have I seen so many rosaries in actual use as here in this infidel metroplis, and with the background of Moorish gates into high-walled courtyards, and the turbaned tombstones or the fountains, the picture is strikingly incongruous. If, then, a Jew, too, should chance to pass with a copy of the "Life of Roosevelt," that one finds in all Balkan book windows, under his arm, the comminglement of interest would be forcibly complete.

The introduction of the veil has affected architecture also in the East, for the Turkish women must need take the air, and so you enter the house through a courtyard, and this is inclosed by a towering wall, at whose double-doored gate one knocks, that the women within may retreat or cover. Lattices, too, are at the street windows, and from through them one gets inklings of harem squabbles that make us wonder how the two later wives of the Turk agree with the omnipotent first one.

EDITORIAL

THE ATTENTION GIVEN TO SCHOOL GEOGRAPHY

THIS Journal has from time to time voiced its conviction that insufficient attention is given to school geography in many of the school systems of the country. This is indicated in several ways. A large number of the workers in the school field still believe that geography is a cram subject and, as such, deserves no more time than is necessary for memorizing the facts marshalled in a more or less skeletal way in the school geographies. It is also evidenced by the constantly decreasing time allotment in school curricula and by the stuffed courses of study printed for many cities in which the amount of ground to be "covered" in a week or month is simply colossal.

Even more the tendency of the country to believe that geography needs but little attention is indicated by the scant amount of space devoted to the subject in educational periodicals. With the exception of a few extremely progressive papers, geography receives but little attention in the periodicals most used by teachers. An occasional brief note may be included while other subjects like English, History, Art, Nature Study or Manual Training have several pages regularly devoted to them. This is not as it should be, for geography is one of the four time-honored and proven fundamental subjects in the education of any man or woman. As such it deserves an adequate amount of attention by publishers, editors, superintendents and supervisors. If these several classes of leaders would indicate their belief in geography by devoting attention to its educational aspects geography teaching in schools would improve as in no other way. If no incentive is given to the average teacher to pay more than passing attention to geography, the subject will get but little more time or effort than the minimum prescribed by the course of study. This Journal believes that the great problem in geography teaching is elementary school geography. The larger number of pupils in the country study geography in the elementary school or not at all. The material here is most difficult to handle, is less well ordered and more involved. It is in this field that teachers need the most help. The problem is large enough and sufficiently important to be worthy of all the attention it can receive. Let us hope that a new era may soon dawn and that geography teaching may receive the attention from all workers due to so important a subject.

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REVIEW

THE GEOGRAPHY AND GEOLOGY OF ALASKA. A summary of existing knowledge, by Alfred H. Brooks. With a section on Climate by Cleveland Abbe, Jr., and a topographical map and description thereof by R. V. Goode. Prof. Paper, No. 45, U. S. Geol. Survey, 1906.

It is impossible to conceal one's admiration for this monograph on Alaska by an explorer whose facility with his pen is no less creditable than his explorations. The work is, undoubtedly, one of the most noteworthy and original contributions to the geography of North America that has appeared in the last quarter century. We have had Alaska pictured by enthusiastic travelers and idealized by artists and novelists, but we are enabled for the first time to obtain from a geographer and geologist an accurate and comprehensive view of the whole province. The physiographic features are regularly described in systematic terms, thus making the book much more valuable as a regional study of the continent than if described in ordinary phrase in the all too common manner of explorers. The book makes a special appeal to the geographer by reason of its balanced descriptions, its constant reference to both controls and responses.

One realizes as never before the value of an efficient application of this guiding principle of the science. The migratory Eskimo of the monotonous expanses of the Yukon Delta; the truculent native middleman of the highly indented southern coast; the solitary winter sledger of the frozen rivers; the distribution and size of spruce and willow and tamarack: these are but a few of the many ontographic items which impel one to the reading of every page.

The report is accompanied by a large topographic map of the territory and by other topographic maps of special areas.

The physiographic sub-divisions are represented on a separate map and afford further data toward completing a detailed physiographic map of the continent. The choice of photographs which illustrate the text is unusually effective.

Space forbids more than the mention of the geologic map and a section on the geology. The limited glaciation of the region and its slight effect on topography is determined as well as the relation of the region to the centers of ice dispersal. As for the structural studies, the stratigraphic position and distribution of some horizons have been fairly well established in the areas surveyed and a table of provisional stratigraphic correlation has been prepared as a working basis for further geologic study and exploration.—*Isaiah Bowman.*

RECENT PUBLICATIONS

FRYE'S FIRST STEPS IN GEOGRAPHY, Alexis Everett Frye, pp. VIII & 171. Boston, Ginn & Co., 1906. A new beginner's book in the well-known series by Mr. Frye, in part revised but largely rewritten. The style is descriptive rather than exclamatory and the book is much more teachable and readable than its predecessor. The well-known features of the author's earlier book have not been lost in the revision and the excellent illustrations have been in large part retained.

KING'S ADVANCED GEOGRAPHY. Charles F. King, pp. XXIV & 287. New York, Charles Scribner's Sons.

An adequate companion to the author's striking Elementary Geography. Interestingly written, well illustrated and the best example of the so-called "type" method of teaching geography.

TWENTY-EIGHT EXERCISES ON TOPOGRAPHIC MAPS. M. S. W. Jefferson, pp. 30. The Author, Ypsilanti, Mich.

A laboratory pamphlet by an indefatigable worker and experienced teacher, that deserves use or reference by all teachers of laboratory physiography and geography.

NEWS ITEMS

LECTURES FOR TEACHERS.—Under the auspices of the Brooklyn Teachers' Association a special extension course in the pedagogical side of geography is being given in Adelphi College. Between forty and fifty teachers are enrolled. The course, consisting of thirty lectures is being given by Mr. Ray H. Whitbeck, of Trenton, one of the associate editors of this Journal. A course of field lessons was also given to a class of 8th grade teachers of the City of Newark during the fall by Mr. Whitbeck.

A NEW GEOGRAPHY CLUB.—A club for the special study of geography and the discussion of geographical problems has been formed among the teachers of Buffalo. Miss Ida L. Kempke is president of the club.

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NOTES

SCHOOL GEOGRAPHY TO-DAY—The realization of the importance of a knowledge of the mutual relations between man and his environment has led to marked improvements in text-books, in the preparation of the teacher and in methods of instruction. To-day geography is one of the fundamentals in elementary anud secondary schools and it occupies a prominent place in several of our universities.

The memorizing of definitions, the location of places and the recital of a few facts concerning each, is no longer considered the essence of geography. The study of human conditions as they actually exist, and of their intimate relations to physical conditions and forces, has, in large measure, taken the place of this dull grind.

In geography most of the field of study is unseen by the pupils. The ability to interpret the geography of remote areas grows out of a knowledge of the home. From the elementary school to the university, therefore, the excursion is now recognized as an essential phase of geography. While the difficulties connected with this line of work are real, the opportunities are greater than many teachers realize, and the results are well worth the effort required. A large number of geographic forms and geographic processes are represented within the immediate vicinity of all schools not situated in great cities. What the city school lacks on the physical side is made up on the industrial and social sides, however.

Because of the remoteness of most of the areas studied, maps become exceedingly important. Pupils should be able to read maps of all kinds readily, and to sketch and mold with reasonable accuracy the countries studied. Unless map study be intelligently pursued much of geography is a mere collection of meaningless words.

Geography touches human life at an infinite number of points. Because of this there is a tendency on the part of the pupil to wander from the question in hand. He has some bit of information, some personal experience perhaps, which he is very anxious to contribute, but which may have no relation to the topic being discussed. A genuine desire to contribute should not be discouraged, yet the pupil must be held to the point. In order that the best course may be pursued the teacher needs wide experience and much tact.—J. F. Chamberlain in Outlines of Course in Geography.

THE FERTILE PAMPAS OF ARGENTINE.—The most easterly point of Brazil reaches a longitude much closer to the line passing through Liverpool than the line passing through New York City; for South America and Africa are separated by a shorter span of water than that separating New

Orleans from the northern coast of South America. Buenos Aires, capital of the Argentine Republic, on the same parallel of latitude as Cape Town, is 650 miles nearer to that city than to the city of New York. So great is this easterly range of the Western Continent that more than three-quarters of the western coast of South America lies to the east of New York City.

The area of North America in round figures is 8,300,000 square miles, that of South America being seven per cent. less, or 7,700,000 square miles. In mean altitude above sea-level both continents show practically the same record. Further, they are alike in being of triangular shape, with the apex in each case lying toward the South Pole. Although North America has an advantage in area, the point most distant from the coast in North America is practically the same distance from the coast line as in the most interior point in South America. It is also necessary to take cognizance of the contrast existing between the river systems of North and South America. In South America the heaviest rainfall takes place in that section which offers the broadest catch-basin, or drainage area, and this area lies in the heart of the continent, remote from the sea. In North America the division of greatest rainfall is of contracted area and lies close to the sea. This physical contrast lifts South American waterways into the position of great arteries of trade—commercial highways to the sea from centers of trade and population a thousand miles inland and often inaccessible to railroads.

The Argentine Republic has an area of 1,129,400 square miles, or about one-third the area of Brazil; it is four times the size of its western neighbor, Chile; twice the size of Bolivia, on the north; nine and a half times that of Paraguay, and fifteen and a half times that of Uruguay, both lying to the east. If transferred to the Northern Continent, this Argentine area would cover the Pacific coast territory from the Canadian line to the southern extremity of Mexico, including the States of Washington, Oregon, and California and all the States of Mexico. It could be divided into twenty-five States, each as large as Pennsylvania. From north to south it measures about 2,200 miles, or a distance exceeding that separating New York and Denver. In the northern part, or that nearest the Equator, the country has a width of 1,000 miles, equivalent to the distance between New York and St. Louis; at the extreme southern limit of continental Argentine, however, the eastern and western boundaries are only 200 miles apart. Its coast line is equal in length to a line drawn from Key West, Florida, to Halifax, Nova Scotia. The wide range of climatic conditions prevailing in the Republic is indicated by the circumstance that its territory stretches over as many degrees of latitude as separate, on the Northern

Continent, the most southerly point of Florida and the center of Hudson's Bay.

THE NATURAL DIVISIONS OF THE REPUBLIC

Although the larger portion of the Argentine Republic is popularly described as "the plains," the country falls naturally into three great latitudinal divisions, each possessing marked characteristics of conformation and individuality of vegetation. The division of greatest importance and area is that bearing the name of the "Pampas" and occupying the central section of the Republic. From an elevation of about 2,000 feet in the foot-hills of the Andes the pampas sweep eastward to sea-level at the Atlantic. For the greater part they are treeless and covered with a growth of coarse grass which improves rapidly under grazing. The soil in most sections is rich alluvium, often from three to six feet in thickness, formed by decaying vegetation. This soil rests upon sedimentary deposits of earth scoured from the Andes and adjacent highlands. On these great pampas, or prairies, are pastured the majority of the cattle and sheep for which the Argentine Republic is famous, while districts under cultivation now produce more than half of the corn raised in the Republic.

The second division, which occupies the northern third of the Republic, passes under the general title of the river basin of the Parana. Here immense tracts of country, similar to the southern pampas, are devoted to the raising of wheat and the pasturage of cattle, while the fertile banks of the Parana and the Paraguay rivers are the scene of extensive agricultural colonization. Still farther north lie the sugar lands and the sections rich in timber. The soil of the river-basin country is sedimentary deposit of unusual breadth and depth, for the rivers have so frequently shifted their course that the deposit covers an area of 750 miles long and 400 miles wide, ranging from 30 to 100 feet in depth.

The third natural division of the country comprises the Patagonian plains, which form the southern portion of the Republic. These great plains of gravel and sand once formed a bed of an ocean which rolled against the Andes; they require irrigation to become productive. A number of small valleys of extreme fertility exist, however, in this division. Four salt lakes situated in this section are of commercial value.

While the country justifies the general description of a country of great plains, within its limits are to be found the highest mountains in the Southern Hemisphere, conspicuous among them being the giant uplifts of Aconcagua, 22,860 feet, the highest point in America.

LA PLATA—THE SECOND RIVER SYSTEM OF THE WORLD

The second largest river system in the world finds its way to the sea near Buenos Aires, capital of the Argentine Republic, bringing to that port commercial tribute from 10,000 miles of inland waterways—rivers which, ultimately consolidating in La Plata, discharge into the Atlantic a volume of water 84 per cent. greater than that discharged into the Gulf of Mexico by the Mississippi River. This vast river system is almost wholly the gift of neighboring States, the volume of water in the greatest river of the system being as large where it enters Argentine territory, 825 miles inland, as at the river mouth, loss by evaporation equaling gain from intervening streams. The circumstance that these rivers are full-grown when they first cross the boundary line of the Republic—due to the equatorial drainage area having an annual rainfall of 60 inches—renders them of large commercial value. On the Parana, for example, vessels drawing 21 feet can reach the port of Rosário, 230 miles from Buenos Aires; vessels drawing 19 feet, Santa Fé, 350 miles; those drawing 15 feet, Corrientes, 850 miles, while craft drawing 8 feet navigate affluents of the Parana to points in Brazil distant over 2,000 miles from Buenos Aires.

BUENOS AIRES

Buenos Aires, capital of the Argentine Republic, with a population on September 30, 1902, of 861,513 and an area of 72 square miles, is the largest and most important city of South America, the largest city in the Southern Hemisphere, and the second largest city of the Latin race in the world. Measured by foreign trade standards, it ranks second among American cities, its outward and inward tonnage being more than half the size of that credited to New York and four times as great as the tonnage of San Francisco. Liverpool, a representative old-world shipping center, ranks below Buenos Aires in area and population, and its tonnage is only 50 per cent. greater than that of the Argentine capital. As regards situation, Buenos Aires lies as far south of the Equator as Norfolk is north of the Equator. It is distant from New York 5,868 miles; from Liverpool, 6,154 miles; from Hamburg, 6,500 miles; from Cape Town, South Africa, 5,218 miles; from Sydney, New South Wales, 6,300 miles, the last two cities named being on the same parallel of latitude with Buenos Aires. The city spreads over a level plain situated on the right bank of the great La Plata Estuary, 150 miles back from the sea and 125 miles west of the city of Montevideo, Uruguay, which lies on the northern side of the same estuary. It extends 11¼ miles from north to south and 15½ miles from east to west, with a circumference exceeding 38 miles. The

low-lying character of the city's situation, which ranges from 15 to 50 feet above sea-level, combined with the shallow and shifting character of the channel of La Plata, has forced the construction of extensive and enormously expensive harbor works; these works now provide facilities for handling shipping in excess of 20,000,000 tons a year.

Buenos Aires is the commercial as well as the political center of the Argentine Republic, being the gateway and primary market for the larger portion of the trade of the Republic. Although the largest Spanish-speaking city in the world—double the size of Madrid—almost every language is spoken within its limits, four-fifths of its citizens being of foreign birth. Italians are more numerous than natives and there are 100,000 Spaniards resident within the city. Eighty per cent. of the immigrants to the Argentine Republic come to Buenos Aires and it is the permanent home of 18 per cent. of the population of the country.

THE ANNUAL HARVEST

Taking agriculture, one of the great industries of the country, as an illustration, we find the total area under crop to be only 17,464,958 acres. This is one-twentieth of the area available for crops. Indeed, it is estimated that in the provinces of Santa Fé, Corrientes, Cordoba, and Buenos Aires alone there exist over 157,000,000 acres of land capable of growing fine crops of wheat without artificial watering. From an area one-quarter the size of this, the United States now raises one-fifth of the world's wheat supply. To rightly measure, then, Argentine probabilities in the matter of agricultural development, we are thrown back upon the development already existing in certain provinces where wealth and energy have concentrated. Following this line of investigation, we discover that the Province of Buenos Aires, with an area of 69,000,000 acres, about two-thirds as large as California, in 1901 had 1,974,404 acres under wheat, producing 27,996,288 bushels; 1,683,287 acres under corn, producing 51,690,298 bushels; 259,390 acres under linseed, producing 3,650,968 bushels; 27,529 acres under oats, producing 577,654 bushels; 7,286 acres under barley, producing 66,782 bushels. This same province carried 52,630,451 sheep, 7,745,896 cattle, 1,675,385 horses, 248,720 pigs, 11,955 goats, 10,273 asses and mules. Within the limits of this one province, including the capital city, Buenos Aires, there were located, when the census of 1895 was taken, 14,000 manufacturing establishments, employing a capital of $65,000,000, with 97,000 employees and 1,560 separate pieces of machinery, and yet this small section of the Republic, with its large agricultural, pastoral, and manufacturing development, contained a

population of only 2,000,000, or less than one-third the population of Pennsylvania.—*The National Geographic Magazine.*

THE PORT OF ANTWERP.—The distinction of being the second port of Continental Europe, and the third in the world, in point of tonnage, lies between Antwerp and Rotterdam. The figures for Hamburg, Antwerp and Rotterdam, as given in a prominent Rotterdam newspaper, are as follows, for the calendar years 1904 and 1905:

HAMBURG	No. of Ships	Tonnage
1905	15,118	10,382,000
1904	14,843	9,671,000
Increase	275	711,000
ANTWERP	No of Ships	Tonnage
1905	6,034	9,846,707
1904	5,852	9,398,503
Increase	182	448,204
ROTTERDAM	No. of Ships	Tonnage
1905	8,681	8,537,179
1904	7,893	7,915,736
Increase	788	757,443

These figures on their face give Antwerp the larger tonnage, but there is some difference in the method of calculating tonnage at the two ports, and Rotterdam claims that when proper allowance has been made for this difference, the two ports change their relative positions. Be this as it may, the fact remains, that these three ports together have a very substantial share of both the outward and inward trade of Continental Europe, and are, therefore, of prime interest to those who buy and sell over the sea in whatever part of the world they may be.

Antwerp has had an intensely interesting career as a port, but the story of its risings and fallings is rather in the province of the historian than the man of commerce; for perhaps more than is the case with any other great modern city, the present commercial importance of Antwerp is separate from its past glories. The rise of the old city to the position of the richest and most important European port of the Sixteenth Century, with a population of 125,000 people, was due to the geographical discoveries of the latter part of the previous century. Its decline, and the loss of half its population within 20 years was part of that series of mis-

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fortunes that fell on it because of its location in one of those ill-fated political units that later became known as "buffer states." Its modern growth dates from the beginning of the Nineteenth Century when Napoleon realized the strategic importance, and started the construction of the present harbor and quay system. Its subsequent incorporation with the Kingdom of the Netherlands gave an impetus to its trade with the Dutch colonies, and established its position as a centre of inward and outward colonial trade, which since the unfortunate ten years from 1830 to 1839, has grown by leaps and bounds. As the best and most convenient entrance and exit for the world-trade of a rich and thickly populated manufacturing region which includes not only Belgium, but a part of northeastern France, and extends over into Germany, its position is established.

THE DOCK SYSTEM

The river Scheldt has a tidal variation at Antwerp of from 12 to 25 feet. The river along the city front is from 350 to 600 yards in width and admits at extreme low water vessels drawing 25 feet. The tidal variation has made necessary a system of docks with an unchanging water level for the convenient loading and unloading of smaller vessels; and the width and depth of the river have made possible the utilization of the front for the construction of a fine system of quays for the use of large ocean liners.

To the south of the city lie three small docks for the use of river craft, but the main system lies at the northern end and is collectively referred to as the Northern Docks. The oldest of these are the two known as the Petit and Grand Bassin, respectively. These were constructed by Napoleon (1804-1813), are lined with stone, represent an outlay of 13 million francs ($2,600,000), and formed the original naval harbor. The smaller one can accommodate 100 and the larger 250 vessels of moderate tonnage, the smaller being 574 by 482 feet, and the larger 1,319 by 574. The two extend from west to east at right angles with the river. Between them there is an area formerly occupied by the warehouse of the Hanseatic League, which was destroyed by fire in 1893, and has been replaced by iron sheds. To the east of the Grand Bassin is the huge brick warehouse of the Entrepot Royal, and beyond that the principal freight stations of the railways.

At right angles with these two "Bassins," parallel with the river bank, and connected with the Grand Bassin by sluice gates is the Bassin du Kattendyk, which is the centre of the present dock system. This dock is about half a mile long and 328 feet wide, and can take care of vessels of the largest size. With the banks lined with large vessels, and the interior

literally packed with smaller craft this dock presents one of the busiest sights in the shipping world, and its crowded condition makes one realize that the demand for an enlargement of Antwerp's docking facilities has come none too soon.

About this dock are grouped a fine system of warehouses, and a series of drydocks, while on its east bank is the crane known as the "Groote Bok," with a lifting capacity of 120 tons. This dock is connected on the east with three very important smaller basins known respectively as the Bassin au Bois, the Bassin Asia, and the Bassin de la Campine. The main feature of interest in the equipment of these interior basins is the coal tip in the last named, which lifts loaded cars of 25 tons to a height of 40 feet and empties them into the ships at the rate of about ten per hour when at maximum speed.

Beyond this group of six docks, and lying at a short distance to the northwest, around a bend in the Scheldt, are the three large docks known as the Bassin Lefebre, (with a huge grain elevator on the silo system) the Bassin Intercalaries, and the Bassin America, the most recent additions to the dock system of the port. These new docks are equipped with thoroughly modern loading and unloading machinery, and it is these, together with the wharves along the river front, that make Antwerp one of the best equipped of all modern harbors.

The series of nine quays, or wharves, along the river front, while not presenting the same appearance of congestion that is characteristic of the enclosed docks are of special interest and importance because of the fact that they are the landing-place of the ocean liners entering Antwerp. These quays which were constructed in 1879-1885 and enlarged in 1900-1901 have a frontage of over 3½ miles, and represent an outlay of about 100,000,000 francs ($19,300,000). Along the entire shore side runs a railway line which connects with a network covering the entire dock and quay system of the city. Outside of this line is a long series of iron sheds designed as temporary shelter for goods during transfer to or from the ship. Still outside of these are double railway tracks running along the edge of the quays and over these operates one of the finest systems of hydraulic cranes to be found anywhere. Under the railways runs an elaborate hydraulic pressure line, supplied by pumping stations at either end of the dock system, and furnishing power not only for the operation of the cranes, but also for the operation of sluice gates, and the shunting of railway cars.

THE NEW HARBOR PLANS

For several years it has been apparent to those who looked toward the

future that Antwerp's commerce must in a very few years entirely outgrow her facilities for handling it. This time has approached more rapidly even than was predicted and since 1897 engineers have been at work considering various propositions that would make the port equal to any demands that are likely to be made on it for many years to come. A few months ago announcement was made of the completion of a plan which had received the sanction of King Leopold, and which now appears to have good prospects of materialization, as the Belgian Government has made liberal offers of financial assistance to the city.

The plan as announced will make the port of Antwerp larger than any in existence, giving it nearly 40 miles of running quays, making it practically three times its present size. It is estimated that the work will require an outlay of something like 250,000,000 francs ($49,250,000) and will require about ten years for its completion.

Briefly, the plan is this. The present dock and harbor system will be left practically as it is, while a new dock system will be added consisting of a quarter circular canal, 815 feet wide and nearly 40 feet deep, running to the northwest to the Intercalaries Dock and connecting with the Scheldt, five miles away. With this canal will be connected a circular turning basin, a system of drydocks and nine huge loading and unloading docks with complete equipment of the most approved character. Between the two ends of this quarter-circular canal the Scheldt now makes a complete right angle, being in plan much like a bent human arm, with the northwest end of the canal resting on the shoulder, the southeast end in the hand and with the angle of the river at the elbow. The new plan includes the cutting of an entirely new bed for the Scheldt extending in a broad sweep from the shoulder to the hand inside the canal and roughly parallel with it. This will do away with three bad curves in the river and will give a channel to the sea which will not only be easy of navigation, but which will be much less subject to trouble from sandbars than the present one. The strip of land lying between these two new channels will be devoted to warehouse purposes, and there is a strong demand in favor of making it the free port for which Antwerp has for a long time clamored.

The regions of Western Germany, in competition with whose products the products of Belgium have of late years come, have been utilizing the cramped condition of the Antwerp port as an argument in favor of diverting trade to the port of Rotterdam. Up to the present the location of Antwerp has enabled her to hold her own against all such arguments. With the new extension added to her present equipment Antwerp will become one of the marvels of modern commerce.

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Extending in a broad sweep to the east of the new dock plan there lies an area known as the Anvers Extension, embracing some 817 hectares (2019 acres), which it is proposed to devote to manufacturing and warehouse purposes, a project which is quite suggestive of Trafford Park in Manchester.—*Commercial America, August,* 1906.

THE NEW STATE OF OKLAHOMA.—On June 16 President Roosevelt signed the bill passed by the United States Congress admitting Oklahoma and Indian Territory into the union as one State with the name of Oklahoma. When the people of these Territories adopt a constitution in conformity to the Constitution of the United States the new State will formally become a member of the Union, which will make the forty-sixth State.

The new State of Oklahoma will have a population of a million and a half of people. It will have an area of 69,700 square miles. Formerly this entire Territory was called Indian Territory. In 1890 the Territory of Oklahoma was carved out of the western part, and the public strip known as No Man's Land. This country was thrown open to settlement in April, 1900, and in one day 50,000 settlers rushed into the Territory and occupied the lands. Migration has been rapid ever since, and a large part of the country has been developed and cities have been built and railroads constructed within its borders.

One thing that will make Oklahoma different from any other State will be its large Indian population. There are nearly 100,000 Indians within its borders, but practically all of these are living under civilized conditions.

The new State will include over 6,000 miles of railroad in operation, and will have ten cities of from 10,000 to 25,000 population.

Oklahoma will boast of great and varied resources. Agriculture and stock raising are the chief occupations of the people. Corn, wheat, oats, cotton and potatoes are the staples. Two crops of potatoes are raised on the same land in one year. The town of Ardmore has for years been known as the largest market for raw cotton in the United States. It is noted for its tremendous oil production, thousands of wells being now in operation and new territory is continually being developed. A fine quality of coal underlies an area estimated by the Interior Department as 400,000 square miles, and large companies have operated coal mines in this region for years. A beautiful granite has been found in vast quantities, and lesser quantities of iron ore; also cement and copper have been found over the State. In a few years Oklahoma will be in a class with the great States like Illinois and Iowa.—*The Catholic School Journal.*

A GEOGRAPHICAL EXHIBIT.—By the energetic work of Assistant Superintendent David B. Corson, of Newark, N. J., a noteworthy geographical exhibit has recently been made in the public library building of that city. In large part the exhibit consisted of work done by the pupils of the first seven grades in the public schools. In addition there were exhibits of maps and geographical books by publishers, government and state maps and publications, pictures, models, specimens and apparatus.

Superintendent Corson had arranged the pupils' work in regular order of sequence, beginning with the simple studies of the first grade and progressing step by step through to the end of the seventh year. Many novel ideas came out in the hundreds of pieces of work exhibited. One of the striking things was a set of four tables upon which were presented in miniature (1) an arctic scene with Esquimau hut, toy dogs and sledges, ice fields and the animals (toys) peculiar to the far North, (2) a plain in the temperate zone with a field of actual wheat, (3) a tropical jungle amid whose toy forests roamed toy animals, (4) a desert with its oasis and caravan of toy camels. Another was a large map of the United States with a board backing. In the appropriate places upon the map were attached, for example, wheat, rice, corn, coal, iron, gold, copper, etc., indicating the localities where these commodities are chiefly produced. The map work, models, compositions, and specimen test papers were all interesting and reflected credit upon the Newark schools. Many visitors came from a distance to see the exhibit. Among them was a delegation of forty from the Brooklyn Teachers' Association. A regular schedule of visiting hours was arranged so that all of the classes in the public schools, with their teachers, inspected the exhibit and received the inspiration which it afforded. Superintendent Corson testifies that already he sees the beneficial effect of the exhibit upon the geography work throughout the city.—*R. H. W.*

THE COMMERCIAL FACTOR AND ITS PLACE IN GENERAL GEOGRAPHY.—With limited time at my disposal perhaps I can be of most service in the discussion of this topic by indicating very specifically the place of the commercial element in geography, and its relation to the other phases of geography as one might use it in the grades and in the presentation of a continent, for example, North America.

A logical analysis of the subject-matter to be studied will suggest some such outline as the following:

1. *Location, Size, Outline.* Under which one would wish to emphasize the wide range in latitude, from 9° N. to 72° N. latitude, and this is of greatest significance in furnishing a wide variety of climates. The

position with reference to other continents shown as giving us a great advantage in being Europe's nearest great commercial neighbor, and as having our southern ports so close to the north and west coasts of South America as to give us a practical monopoly in the trade of those regions. As to size (omitting the Arctic islands) the fact that we are practically the same size as South America and a little over half the size of Africa. Yet that this great size avails us little, since so great a fraction lies in the inhospitable northern latitudes. The detailed outline showing us many indentations and good harbors in high latitudes and a relative absence of harbors in all low latitudes.

2. *Surface.* Under which we must fix some generalizations: That the Great Highland is close to the west coast, so in a position to interfere most strongly with the rainfall distribution, and hence with the potential wealth of the continent; that the eastern highland is insignificant as a climatic barrier, but, in the nature of its folds and passes, of very great significance as a barrier to trade. For example, the supremacy of New York city depending upon a position of advantage with reference to the best pass across this barrier. That the great flat plain of the center of the continent is the largest invitation to population and wealth. That the position of the major axes of drainage, the St. Lawrence system leading eastward from this rich plain, and the Mississippi leading southward, is of most vital commercial importance.

3. *Climate and Life.* Certain broad lines of climatic influence must be held face to face with the quality and distribution of our main sources of wealth. The incompetence of Canada, with an area as large as our own, must be seen as due to a lack of heat depending upon high latitude, and the Cordilleran interference with winds and rain. That the really great productive part of our realm is due to the humidity of the eastern half of it, this in turn due to a lack of a barrier at south and east; and to the procession of cyclonic storms passing eastward across our area. The zonal distribution of vegetation must be noticed as due to the heat distribution over this area, cotton stopping with the Lower Austral realm, the cereals found at their best in the Upper Austral realm, the forests responding to an ample supply of rain well distributed through the year. That the industrial possibilities vary almost exactly with the rainfall; the cities thinning out with decrease of rain; the railways having a thick network on rich areas, and stopping short with the isohyet of twenty inches per year. That even population density responds directly to the great factor of rain, and the lesser factors of soil and surface.

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4. *Industry and Commerce.* Such an arrangement of factors brings us logically to the real matter of commercial geography. In which the important matter is not so much statistics of values and quantities of production as an interpretation of the facts of production. We want the main facts, of course, but merely as materials to think with. The real value of the study lies in an ability to trace results back to causes. It is of interest to know that last year we produced 2,700,000,000 bushels of corn, worth about $1,300,000,000. But if we stop there, we have lost an opportunity for a bit of real education. We should look back of this fact with the question: Why? And the answer will run: Here is an area of a million square miles of lowland, the major portion of which is very flat, and covered with a rich soil; the best part of this soil being a new soil, transported and ground up by the continental ice-sheet and put into magnificent shape for cultivation. The flat plain has no barrier at the south and but little at the east, and the winds of the cyclones bring ample rain in from the Gulf of Mexico, and follow these rains with ample sunshine. These rich lands have been exploited by pioneers, free, energetic, independent; conditions which make hired labor hard to get, and a pressing invitation is thus issued for labor-saving machinery, and the flat surface and fine soil make it possible to use such machinery to advantage. So we have gang plows by which one man may turn six acres of ground per day, and steam plows by which two men may turn forty acres in a day. These lands are harrowed by machines which will stir a strip of soil from ten to thirty feet wide, so that a man may cover from thirty to ninety acres per day. The seed is sowed by a horse-drawn and automatic machine, with which one man may plant from twenty to thirty acres a day. The corn is cultivated by two-horse, or even three-horse, sulky plows, by which a man may cutlivate one or two rows at a time. When the corn is ripe, a harvesting machine, driven by one man, will cut and bind, and in some cases shock, ten to fifteen acres a day. Then a machine husks and shreds the corn from many acres in a day, and makes it ready for feeding to the stock. All of these labor-saving devices make it possible to raise corn at a cost of ten cents per bushel. This corn then is fed to hogs and cattle, and in the form of meat and dairy produce finds a market everywhere. But this market is good and hence the invitation to raise corn is pressing, in proportion to the efficiency and transportation facilities, and in proportion as freight rates are low. The surface makes railway building easy, the competition of many roads, and the competition of the Great Lakes for the great east-west flow of commodities, have given us the lowest freight rates

in the world, hence the widest market for our corn products, and hence a larger invitation for a great production.

Our great corn crop is, by such a study, more than a mere numeric running to ten places. And I suspect that we might thrive on much fewer statistics in our secondary teaching were we to choose wisely what statistics we deal with, and put more emphasis on the causal sequences involved, in a smaller list of commodities. For commercial geography in any grade is more than lists of figures. In fact, if it be merely lists of figures it is not geography at all, and may be merely a burden to the life of the pupil, and teacher, too. Commercial geography is then really a point of view, or almost, as one might say, a frame of mind. It is a study of the problems of commerce as outgrowths, or expressions, of the interactions of geographic factors. We may take this point of view in our presentation of geography in any grade. Exercises in it will serve to show the pupil the ways in which the forces and forms he is studying are at work in the great world of business into which he so soon will graduate. In the ordinary work of the grades, it will be merely the last term in a topical treatment of a region, in which the student may gradually perceive that geography has a message for him in practical, every-day experiences, and so there may be brought into the study of geography that intense element of the practical, that has always given arithmetic supremacy in common school work. In the high school, of course, commercial geography has a status of its own, in which the student will be the gainer for all the good work that may have been done for him in the grades. But the discussion of commercial geography in the high school curriculum is another story, which I shall not attempt to discuss at this time.—*J. Paul Goode in Educational Bi-Monthly.*

Geography in American Universities.—It is told of Dr. Jowett of Oxford, that when the question of establishing a chair of geography at Oxford was being discussed, he asked of one of his advisers: "Can geography be taught so as to make men think?" That the answer he received was an affirmative one may be inferred when it is known that Oxford today has a department of geography with a well organized staff of readers, teachers, and lecturers covering various departments of the science.

This recognition of geography by one of the oldest and most famous of English universities, marked an epoch in the development of this department of science. It is true that for many years previous to its establishment in the universities of England, the universities of Germany had recognized the importance of the study of geography and had offered

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courses in its various branches; and that, influenced by the universities, the primary and secondary schools of Germany have become famous for their teaching of geography. The action of Oxford, however, exerted a more direct influence on the western world, and was gratifying to those teachers and students who realize that what is needed is the establishment of geography on a scientific basis, and, furthermore, that such a basis can be reached only through the endowment of chairs in universities, which will enable learned men to devote their whole time to teaching and to geographical research. Other English universities have followed the lead of Oxford, and there are now no less than thirteen institutions of learning in which geography is recognized. Cambridge has gone even further than Oxford, and requires geography in her examination for an A. B. degree.

Whatever advance the American schools have made in geography teaching during the past few years cannot be traced to the universities as organizations, but to a few thinkers, often university men, whose writings and lectures have done much to reform the old-time conception of geography. The suggestions furnished by these men, and worked out and elaborated by many teachers of the present day, account for the great advance. It is a question whether or not the schools would have attained greater efficiency if the reform had been instituted by the higher institutions of learning, but certain it is that before much further progress is possible the boundaries of geography must be mapped out, and the relation of its parts so defined as to place it in its proper place among the other sciences. This work, it is evident, must be done by the universities.

An examination of the courses of study of several of our leading universities for 1906 shows that Amreican institutions are far behind the English in their recognition of geography. If we except physical geography, in which subject almost all of the institutions offer courses in connection with the study of geology, we find little work offered in this subject. Although Harvard has a department of geology and geography, physical geography only is offered. Yale offers both physical and commercial geography in its geology department. Columbia offers a choice of five courses in its Teachers College. The catalogues of Dartmouth, Amherst, Boston University, Ann Arbor, and Leland Stanford advertise courses in physiography only. Although it has no department of geography, the University of California offers two courses which show its recognition of the value of scientific geographic training:—I. An introduction to Economic Geography, including the elements of Scientific Geography; II. The Geography of International Trade. For each of these courses three hours per week during a half year is required.

So far as reports show, the University of Chicago is the only American university having a department of geography. This department was established in 1903, and the courses it offers are such as tend to advance the subject of geography to its right position among the sciences. One of the courses offered this year is as follows: "The Influences of Geography on American History. A study of the geographic conditions which have influenced the course of American history. Their importance as compared with one another and their importance as compared with non-geographical features." Various writers on history have devoted more or less space to a consideration of the influence of environment on the development of a people, but, so far as is known, this is the first attempt of any American university to present in a formal manner the geographical aspects of history. It is work of this kind which confirms the truth of what was said some years ago by H. J. McKinder, M. A., reader in geography in the University of Oxford. He writes as follows: "It appears to me, therefore, that in the present decade we are for the first time in a position to attempt with some degree of completeness a correlation between the larger geographical facts and the larger historical generalizations. For the first time we can perceive something of the real proportion of features and events on the stage of the whole world and may seek a formula which shall express certain aspects of a geographical causation in universal history."

History is not the only subject with a geographical aspect. The subjects of archeology, of commerce, of colonization, has each its geographic setting, and even the studies of botany and zoölogy are dependent upon geographic conditions for the development of their ecological side. And yet, despite all this wealth of material, and despite a crying demand for higher instruction in a subject so necessary, most of the American universities have done next to nothing.—*Jane Perry Cook in Educational Bi-Monthly.*

SUPPLEMENTARY READING.—The September number of the *Journal of Geography* contains an article on "What a child should know at the end of its School Course," which deserves the attention of teachers. The author, Mr. W. C. Moore, points out that the prudent teacher must be prepared for the fact that the child will forget almost all the details which he has learned, and that therefore the aim of the whole geographical course should be to make sure that the unforgettable residue will be something of real value to the citizen—a habit of mind, a comprehension of the geographical mode of looking at phenomena. Stress is laid upon the need of supplementing text-book teaching by reference to current events, to the

contents of the newspapers, the magazines, the consular reports, and so on, in so far as they relate to geography. This not only makes the facts of geography real and living, but it establishes a habit of consulting atlas and book of reference in connection with periodical literature which is of permanent value. The need referred to seems to us real and clamant, and the daily increasing pile of geographical text-books and readers on the editorial table seems to us to further suggest the question whether the production of geographical school books is not in danger of being carried to excess. In the dark days when "scientific" geography was in its infancy, boys and girls were at least often encouraged to read for themselves the great books of travel, to follow, for instance, Livingstone's track across the unknown wastes; but now apparently they are supposed to be satisfied with an extract in a "Geographical Reader," while the *Travels* are left to grow dusty on the shelf. There is, of course, much to be said for the geographical reader, just as there is much to be said for the deluge of text-books, but surely there lurks in both a real danger also. We do not want the youthful mind to be fed entirely on the intellectual equivalent of "digested breakfast food." Nowadays almost every town of any size has its public library with both reference and lending departments. Would it not be better if, in place of swallowing the most irreproachable of text-books, the senior pupils at least were taught how to use the resources of a library, and how to deal with first-hand material, with blue-books, reports, and all that wealth of material which pours in upon any library? Further, rather than reading the most admirably arranged collection of scraps from famous books of travel, are they not better employed in reading for themselves the original books and being trained to give an account in their own words of the salient points.—*Scottish Geographical Magazine.*